

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 12 July 2001 (12.07.01)	
<b>International application No.</b> PCT/US00/28827	<b>Applicant's or agent's file reference</b> P1748R1
<b>International filing date (day/month/year)</b> 18 October 2000 (18.10.00)	<b>Priority date (day/month/year)</b> 20 October 1999 (20.10.99)
<b>Applicant</b> DE SAUVAGE, Frederic, J. et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

11 May 2001 (11.05.01)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b>  Charlotte ENGER Telephone No.: (41-22) 338.83.38
--	--

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
26 April 2001 (26.04.2001)

PCT

(10) International Publication Number  
**WO 01/29070 A3**

(51) International Patent Classification<sup>7</sup>: **C07K 14/715**,  
16/28, A61P 37/02

(21) International Application Number: PCT/US00/28827

(22) International Filing Date: 18 October 2000 (18.10.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/160,542 20 October 1999 (20.10.1999) US

(71) Applicant (for all designated States except US): **GENENTECH, INC.** [US/US]; 1 DNA Way, South San Francisco, CA 94080-4990 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DE SAUVAGE, Frederic, J.** [BE/US]; 187 Shooting Star Isle, Foster City, CA 94404 (US). **GREWAL, Iqbal** [US/US]; 323 Turkshead Lane, Redwood City, CA 94065 (US). **GURNEY, Austin, L.** [US/US]; 1 Debbie Lane, Belmont, CA 94002 (US).

(74) Agents: **AGARWAL, Atulya, R.** et al.; Genentech, Inc., 1 DNA Way, South San Francisco, CA 94080-4990 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:  
2 May 2002

(15) Information about Correction:

Previous Correction:

see PCT Gazette No. 38/2001 of 20 September 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MODULATION OF T CELL DIFFERENTIATION FOR THE TREATMENT OF T HELPER CELL MEDIATED DISEASES

(57) Abstract: The present invention relates to methods for the treatment and diagnosis of immune related diseases, including those mediated by cytokines released primarily either Th1 or Th2 cells in response to antigenic stimulation. The present invention further relates to methods for biasing the differentiation of T-cells in either the Th1 subtype or the Th2 subtype, based on the relative expression levels of the gene TCCR, and its agonists or antagonists. The present invention further relates to a method of diagnosing Th1- and Th2-mediated diseases.

WO 01/29070 A3



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/28827

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/715 C07K16/28 A61P37/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, EMBASE, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 44455 A (ZYMOGENETICS INC) 27 November 1997 (1997-11-27) cited in the application page 19, line 30 -page 20, line 29 claims 1-43	1-34
A	C. SPRECHER ET AL: "Cloning and Characterization of a novel Class I Cytokine Receptor" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, vol. 246, no. 1, 1998, pages 82-90, XP002174914 cited in the application abstract page 90, left-hand column	1-34

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*8\* document member of the same patent family

Date of the actual completion of the international search

16 August 2001

Date of mailing of the international search report

29/08/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Siatou, E

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/28827

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ANNE O'GARRA: "Cytokines Induce the Development of Functionally Heterogeneous T Helper Cell Subsets" IMMUNITY, vol. 8, March 1998 (1998-03), pages 275-283, XP002174915 the whole document	1-34
A	ROMAGNANI S ET AL: "Human Th1 and Th2 cells: Functional properties, mechanisms of development and role in diseases" ALLERGOLOGIE, DUSTRI VERLAG, MUENCHEN-DEISENHOFEN, DE, vol. 19, no. 4, 1996, pages 175-179, XP002092593 ISSN: 0344-5062 the whole document	1-34
A	CONSTANT S L ET AL: "INDUCTION OF TH1 AND TH2 CD4+ T CELL RESPONSES: THE ALTERNATIVE APPROACHES" ANNUAL REVIEW OF IMMUNOLOGY, ANNUAL REVIEWS INC, US, vol. 15, 1997, pages 297-322, XP002060443 ISSN: 0732-0582 the whole document	1-34

## FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

## Continuation of Box I.1

Although claims 1-14, 15 only as far as in vivo methods are concerned, and 16-26 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claim 28 is directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

## Continuation of Box I.2

Present claims 1-6 and 14 relate to methods of treatment using an extremely large number of possible compounds acting as TCCR antagonists. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds and methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods using the compounds disclosed in claims 7-13.

Present claims 15-21 relate to methods of treatment using an extremely large number of possible compounds acting as TCCR agonists. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds and methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods using the compounds disclosed in claims 22-26.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/28827

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9744455 A	27-11-1997	US 5792850 A	11-08-1998
		AU 3009397 A	09-12-1997
		EP 0910635 A	28-04-1999
		JP 2000512492 T	26-09-2000
		US 5925735 A	20-07-1999
		US 6080406 A	27-06-2000

---

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
26 April 2001 (26.04.2001)

PCT

(10) International Publication Number  
**WO 01/29070 A2**

- (51) International Patent Classification<sup>7</sup>: C07K 14/00
- (21) International Application Number: PCT/US00/28827
- (22) International Filing Date: 18 October 2000 (18.10.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/160,542 20 October 1999 (20.10.1999) US
- (71) Applicant (for all designated States except US): GENENTECH, INC. [US/US]; 1 DNA Way, South San Francisco, CA 94080-4990 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DE SAUVAGE, Frederic, J. [BE/US]; 187 Shooting Star Isle, Foster City, CA 94404 (US). GREWAL, Iqbal [US/US]; 323 Turkshead Lane, Redwood City, CA 94065 (US). GURNEY, Austin, L. [US/US]; 1 Debbie Lane, Belmont, CA 94002 (US).
- (74) Agents: AGARWAL, Atulya, R. et al.; Genentech, Inc., 1 DNA Way, South San Francisco, CA 94080-4990 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— without international search report and to be republished upon receipt of that report
- (48) Date of publication of this corrected version:  
20 September 2001
- (15) Information about Correction:  
see PCT Gazette No. 38/2001 of 20 September 2001, Section II
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TYPE I CYTOKINE RECEPTOR TCCR

(57) Abstract: The present invention relates to methods for the treatment and diagnosis of immune related diseases, including those mediated by cytokines released primarily either Th1 or Th2 cells in response to antigenic stimulation. The present invention further relates to methods for biasing the differentiation of T-cells in either the Th1 subtype or the Th2 subtype, based on the relative expression levels of the gene TCCR, and its agonists or antagonists. The present invention further relates to a method of diagnosing Th1- and Th2-mediated diseases.

WO 01/29070 A2

## PATENT COOPERATION TREATY

PCT


REC'D 19 OCT 2001

WIPO

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SJK/FP5928445	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/28827	International filing date (day/month/year) 18/10/2000	Priority date (day/month/year) 20/10/1999
International Patent Classification (IPC) or national classification and IPC C07K14/00		
Applicant GENENTECH, INC. et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input checked="" type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  11/05/2001	Date of completion of this report  16.10.2001	
Name and mailing address of the international preliminary examining authority:   European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized officer  Siatou, E  Telephone No. +49 30 25901 327	





# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/28827

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-99 as originally filed

**Claims, No.:**

1-34 as originally filed

**Drawings, No.:**

1-19 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/US00/28827

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 1(partially), 2-24, 15(partially), 16-26, 28 in respect of industrial applicability.

because:

☒ the said international application, or the said claims Nos. 1(partially), 2-14, 15(partially), 16-26, 28 in respect of industrial applicability relate to the following subject matter which does not require an international preliminary examination (*specify*):  
**see separate sheet**

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-6, 14-21 (all partially).

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/US00/28827

---

Novelty (N)	Yes:	Claims	1-34
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-34
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15, 27, 29-34
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claims 1 and 15, as far as in vivo application are concerned, as well as claims 2-14, 16-26 and 28 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(i) PCT).

No opinion will be given for those parts of the application which have not been the subject of a search report.

Moreover, and as already stated in the search phase, support within the meaning of Art. 6 PCT and/or disclosure within the meaning of Art. 5 PCT is to be found for only a very small number of compounds/products within the scope of the present application, namely those parts relating to methods using the compounds disclosed in claims 7-13 and 22-26 of the present application.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The Applicant's attention is drawn to the fact that the present opinion expressed as to the novelty, inventive step and industrial applicability refers only to the matter for which an international search report has been drawn up.

None of the cited prior art documents discloses or suggests the use of a TCCR antagonist or TCCR agonist for inducing T cell differentiation and the use of these agonists or antagonists for treating Th1 or Th2 mediated diseases. The subject matter of claims 1-34 meets the requirements of novelty (Art. 33(2) PCT) and inventive step (Art. 33(3) PCT).

**Re Item VIII**

**Certain observations on the international application**

Claims 1-6, 14-21 relate to methods using compounds acting as TCCR agonists or

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/US00/28827

antagonists. No further technical characteristic are given for these compounds. as already stated in the search stage, support within the meaning of Art. 6 PCT and disclosure within the meaning of Art. 5 PCT is to be found for only a small portion of the compounds and methods claimed.

**RECEIVED**

## PATENT COOPERATION TREATY

PCT/US00/28827

AA/LS

JUL 16 2001

PCT

GENENTECH, INC.  
LEGAL DEPT.**NOTIFICATION OF THE RECORDING  
OF A CHANGE**(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

AGARWAL, Atulya, R.  
Genentech, Inc.  
1 DNA Way  
South San Francisco, CA 94080-4990  
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year)

02 July 2001 (02.07.01)

Applicant's or agent's file reference

P1748R1

**IMPORTANT NOTIFICATION**

International application No.

PCT/US00/28827

International filing date (day/month/year)

18 October 2000 (18.10.00)

## 1. The following indications appeared on record concerning:

☐

the applicant

☐

the inventor

☒

the agent

☐

the common representative

Name and Address

AGARWAL, Atulya, R.  
Genentech, Inc.  
1 DNA Way  
South San Francisco, CA 94080-4990  
Canada

State of Nationality

State of Residence

Telephone No.

650-225-4463

Facsimile No.

650-952-9881

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐

the person

☐

the name

☒

the address

☐

the nationality

☐

the residence

Name and Address

AGARWAL, Atulya, R.  
Genentech, Inc.  
1 DNA Way  
South San Francisco, CA 94080-4990  
United States of America

State of Nationality

State of Residence

Telephone No.

650-225-4463

Facsimile No.

650-952-9881

Teleprinter No.

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

☒

the receiving Office

☒

the designated Offices concerned

☐

the International Searching Authority

☐

the elected Offices concerned

☐

the International Preliminary Examining Authority

☐

other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

F. Baechler

Telephone No.: (41-22) 338.83.38

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KIDDLE, Simon J  
Mewburn Ellis  
York House  
23 Kingsway  
LONDON WC2B 6HP  
GRANDE BRETAGNE

**RECEIVED**

**18 OCT 2001**

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing  
(day/month/year) 16.10.2001

Applicant's or agent's file reference  
SJK/FP5928445

### IMPORTANT NOTIFICATION

International application No.  
PCT/US00/28827

International filing date (day/month/year)  
18/10/2000

Priority date (day/month/year)  
20/10/1999

Applicant  
GENENTECH, INC. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

----- European Patent Office - Gitschiner Str. 103  
D-10958 Berlin  
Tel. +49 30 25901 - 0  
Fax: +49 30 25901 - 840

Authorized officer

Geier, A

Tel. +49 30 25901-706



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>SJK/FP5928445</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/US00/28827</b>	International filing date (day/month/year) <b>18/10/2000</b>	Priority date (day/month/year) <b>20/10/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>C07K14/00</b>		
Applicant <b>GENENTECH, INC. et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  <b>11/05/2001</b>	Date of completion of this report  <b>16.10.2001</b>
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tef. +49 30 25901 - 0 Fax: +49 30 25901 - 840</b>	Authorized officer  <b>Siatou, E</b>  Telephone No. +49 30 25901 327  



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/28827

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-99 as originally filed

**Claims, No.:**

1-34 as originally filed

**Drawings, No.:**

1-19 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/28827

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

### III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
- ☒ claims Nos. 1(partially), 2-24, 15(partially), 16-26, 28 in respect of industrial applicability.

because:

- ☒ the said international application, or the said claims Nos. 1(partially), 2-14, 15(partially), 16-26, 28 in respect of industrial applicability relate to the following subject matter which does not require an international preliminary examination (*specify*):  
**see separate sheet**

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

- ☒ no international search report has been established for the said claims Nos. 1-6, 14-21 (all partially).

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
- ☐ the computer readable form has not been furnished or does not comply with the standard.

### V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/28827

Novelty (N)	Yes:	Claims	1-34
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-34
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15, 27, 29-34
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claims 1 and 15, as far as in vivo application are concerned, as well as claims 2-14, 16-26 and 28 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(i) PCT).

No opinion will be given for those parts of the application which have not been the subject of a search report.

Moreover, and as already stated in the search phase, support within the meaning of Art. 6 PCT and/or disclosure within the meaning of Art. 5 PCT is to be found for only a very small number of compounds/products within the scope of the present application, namely those parts relating to methods using the compounds disclosed in claims 7-13 and 22-26 of the present application.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The Applicant's attention is drawn to the fact that the present opinion expressed as to the novelty, inventive step and industrial applicability refers only to the matter for which an international search report has been drawn up.

None of the cited prior art documents discloses or suggests the use of a TCCR antagonist or TCCR agonist for inducing T cell differentiation and the use of these agonists or antagonists for treating Th1 or Th2 mediated diseases. The subject matter of claims 1-34 meets the requirements of novelty (Art. 33(2) PCT) and inventive step (Art. 33(3) PCT).

**Re Item VIII**

**Certain observations on the international application**

Claims 1-6, 14-21 relate to methods using compounds acting as TCCR agonists or

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/US00/28827

antagonists. No further technical characteristic are given for these compounds. as already stated in the search stage, support within the meaning of Art. 6 PCT and disclosure within the meaning of Art. 5 PCT is to be found for only a small portion of the compounds and methods claimed.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P1748R1</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 00/ 28827</b>	International filing date (day/month/year) <b>18/10/2000</b>	(Earliest) Priority Date (day/month/year) <b>20/10/1999</b>
Applicant  <b>GENENTECH, INC. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

**4. With regard to the title,**

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**MODULATION OF T CELL DIFFERENTIATION FOR THE TREATMENT OF T HELPER CELL  
MEDIATED DISEASES**

**5. With regard to the abstract,**

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No.**

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## Continuation of Box I.1

Although claims 1-14, 15 only as far as in vivo methods are concerned, and 16-26 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claim 28 is directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

## Continuation of Box I.2

Present claims 1-6 and 14 relate to methods of treatment using an extremely large number of possible compounds acting as TCCR antagonists. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds and methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods using the compounds disclosed in claims 7-13.

Present claims 15-21 relate to methods of treatment using an extremely large number of possible compounds acting as TCCR agonists. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds and methods claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the methods using the compounds disclosed in claims 22-26.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/28827

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/715 C07K16/28 A61P37/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, EMBASE, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 44455 A (ZYMOGENETICS INC) 27 November 1997 (1997-11-27) cited in the application page 19, line 30 -page 20, line 29 claims 1-43	1-34
A	--- C. SPRECHER ET AL: "Cloning and Characterization of a novel Class I Cytokine Receptor" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, vol. 246, no. 1, 1998, pages 82-90, XP002174914 cited in the application abstract page 90, left-hand column --- -/--	1-34



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

16 August 2001

Date of mailing of the international search report

29/08/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Siatou, E



## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/28827

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ANNE O'GARRA: "Cytokines Induce the Development of Functionally Heterogeneous T Helper Cell Subsets" IMMUNITY, vol. 8, March 1998 (1998-03), pages 275-283, XP002174915 the whole document	1-34
A	ROMAGNANI S ET AL: "Human Th1 and Th2 cells: Functional properties, mechanisms of development and role in diseases" ALLERGOLOGIE, DUSTRI VERLAG, MUENCHEN-DEISENHOFEN, DE, vol. 19, no. 4, 1996, pages 175-179, XP002092593 ISSN: 0344-5062 the whole document	1-34
A	CONSTANT S L ET AL: "INDUCTION OF TH1 AND TH2 CD4+ T CELL RESPONSES: THE ALTERNATIVE APPROACHES" ANNUAL REVIEW OF IMMUNOLOGY, ANNUAL REVIEWS INC, US, vol. 15, 1997, pages 297-322, XP002060443 ISSN: 0732-0582 the whole document	1-34

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/28827

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9744455 A	27-11-1997	US 5792850 A	11-08-1998
		AU 3009397 A	09-12-1997
		EP 0910635 A	28-04-1999
		JP 2000512492 T	26-09-2000
		US 5925735 A	20-07-1999
		US 6080406 A	27-06-2000
<hr/>			